

REMARKS/ARGUMENTS

This is in response to the Office Action dated July 20, 2009. Claims 1-16 are pending and stand rejected in the outstanding Office Action.

The rejection of claim 1 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Numaoka (US 2001/0038386) in view of Kaji (US 6,501,568) and Minoru (JP 2000-202162) is respectfully traversed.

Numaoka/Kaji/Minoru fails to teach or suggest “determining a barycenter of the objects based on the weighted value and the positions of the objects”, as required by claim 1.

In response to Applicant’s argument filed with the amendment of April 20, 2009, that the cited prior art fails to teach or suggest determining a barycenter of the objects based on the weighted value and the positions of the objects, and generating a display image in which the barycenter lies in approximately the center of the display image, the Examiner stated that Numaoka discloses that the calculation from the barycenter calculator is saved to the barycenter coordinates memory, hence “this denotes that the data provided by the barycenter calculator includes positions because coordinates are used for showing a position or location of an object in space”, see p. 10 of the Office Action of July 20, 2009.

Even though Numaoka teaches that the calculation from the barycenter calculator is saved to the barycenter coordinates memory 6, this simply means that the coordinates of the barycenter itself are stored in the memory 6. It does not mean that the coordinate positions of individual objects are stored in memory 6. The barycenter calculator provides data related to the barycenter based on the change of the image between two successive frames. The Examiner is correct in stating that the barycenter calculator includes positions. However, these positions are the positions of the barycenter itself based on the change in the image between two successive

frames. Numaoka does not teach that the barycenter calculator provides coordinates of individual objects, let alone teach that the barycenter is calculated based on the positions of the individual objects.

A barycenter based on the change of the image between two successive frames is not the same as a barycenter based on the positions of individual objects. For example, in the extreme case where the two successive frames are identical, then the barycenter would be at (0, 0) (since Numaoka teaches that in the other barycenter coordinates memory 7, the barycenter is initialized to (0, 0), see [0024]). However, depending on the locations of the various objects, the barycenter of the invention of claim 1 is away from point (0, 0). Hence, it is clear that the calculation of the barycenter in Numaoka is completely different from the calculation in the invention of claim 1.

Regarding Kaji, the Examiner stated that in Kaji some objects are given a higher "attention degree"/"weight value" than others citing rules (1) thru (8) of column 4, lines 13-31. Moreover, the Examiner stated that Kaji discloses a calculation process where higher "weight values" may be given based on an object's position, e.g., center of a display, depth on display, see p. 10 of the Office Action.

Even though Kaji teaches assigning various degrees of attention/weights to different objects, this is done for the purpose of adjusting the sight lines in a stereoscopic display device, e.g., a head mount display (see Fig. 1). This is completely different from Numaoka where the view point of a virtual camera dynamically responds to the movement of the mobile set equipped with a display. In other words, one of ordinary skill in the art would not have looked into Kaji to modify the stabilization method of Numaoka. Numaoka discloses calculating a change to the barycenter based solely on a change in image between two frames. In particular, Numaoka discloses a frame difference calculator 4 for calculating an optical flow between the

two successive frames. Even if objects in an image in Numaoka's system were assigned attention degrees as in Kaji, this newly added data would be meaningless to the frame difference calculator, which only calculates optical flow. That is, Numaoka's frame difference calculator 4 would not know how to interpret the newly added attention degree data since it merely determines optical flow. The Examiner has not explained how to modify Numaoka using the weights taught by Kaji, and more specifically, the Examiner has not indicated how to use the weights of individual objects to calculate the barycenter based on the change in the image between two successive frames.

Regarding Applicant's argument that Numaoka fails to teach or suggest looking at the positions of individual objects and calculating a barycenter based on the positions of the individual objects at each frame, the Examiner stated that "Numaoka discloses taking into account individual objects. Numaoka notes before displaying a three-dimensional image on a display, three-dimensional objects are projected on the two-dimensional screen as seen in its view", see p. 11 of the Office Action.

Even though the virtual camera 11 acquires object data in the 3D model space from the 3D object space database 12 and projects 3D objects on the 2D screen as seen in its view, [0027] in Numaoka, this does not imply that the calculation of the barycenter is based on the positions of individual objects, as required by claim 1. Numaoka clearly teaches that "The change in the image is transferred to the barycenter calculator 5 where it is used to calculate the barycenter of the change", [0024].

Minoru fails to cure the deficiencies of Numaoka/Kaji.

For the above reasons, claim 1 is allowable. Claims 12 and 13 include limitations similar to those of claim 1 and are also allowable.

It is respectfully requested that the rejection of claims 2-11 and 14-16, all dependent from independent claim 1 or 13, also be withdrawn.

In view of the foregoing and other considerations, all claims are deemed in condition for allowance. A formal indication of allowability is earnestly solicited.

The Commissioner is authorized to charge the undersigned's deposit account #14-1140 in whatever amount is necessary for entry of these papers and the continued pendency of the captioned application.

Should the Examiner feel that an interview with the undersigned would facilitate allowance of this application, the Examiner is encouraged to contact the undersigned.

Respectfully submitted,

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